

AMENDMENTS TO THE CLAIMS

The following listing of the claims is provided in accordance with 37 C.F.R. §1.121.

1. (currently amended) An X-ray tube, comprising:

an anode assembly, comprising:

a target for emitting X-rays upon irradiation with an electron beam,

a rotor shaft coupled to a motor rotor system and the target, the rotor shaft configured to rotate the target, and

a bearing system ~~comprising at least two duplex bearing assemblies~~ supporting the rotor shaft; and

a cathode assembly, comprising:

a cathode configured to emit the electron beam, and

an insulator isolating the cathode from ground potential, wherein the insulator and the motor rotor system are located on the same side of the target and wherein the insulator is generally parallel and radially offset to the rotor shaft.

2. (original) The X-ray tube of claim 1, wherein the insulator comprises a conical insulator.

3. (canceled).

4. (original) The X-ray tube of claim 1, wherein the insulator is offset in a radial direction to the motor rotor system.

5. (currently amended) The X-ray tube of claim 1, wherein the ~~at least two duplex bearing system assemblies~~ distributes load substantially evenly.

6. (original) The X-ray tube of claim 1, wherein the ~~at least two duplex bearing system assemblies~~ straddles the target.

7. (currently amended) ~~A CT system~~ ~~An X-ray tube~~, comprising:

~~a gantry adapted to rotate about a volume;~~

~~an X-ray tube mounted on the gantry, the X-ray tube, comprising:~~

an anode assembly, comprising:

a target for emitting X-rays upon irradiation with an electron beam,

a rotor shaft coupled to a motor rotor system and the target, the rotor shaft configured to rotate the target, and

a bearing system ~~comprising at least two duplex bearing assemblies~~ supporting the rotor shaft; and

a cathode assembly, comprising:

a cathode configured to emit the electron beam, and

an insulator isolating the cathode from ground potential, wherein the insulator and the motor rotor system are located on the same side of the target;

wherein the X-ray tube provides axial coverage of up to 80 mm from the focal spot

an X-ray detecting unit configured to detect the X-rays emitted from the X-ray tube and transmitted through the volume and to generate a detector output signal in response to the detected X-rays;

an X-ray controller configured to operate the X-ray tube;

a data acquisition system for receiving the detector output signal;

an image reconstructor coupled to the data acquisition system for generating an image signal in response to the detector output signal; and

a computer for controlling the operation of at least one of the X-ray controller, the data acquisition system and the image reconstructor.

8. (currently amended) The X-ray tube CT system of claim 7, wherein the insulator comprises a conical insulator.

9. (canceled).

10. (currently amended) The X-ray tube CT system of claim 7, wherein the insulator is offset in a radial direction to the motor rotor system.

11. (currently amended) The X-ray tube CT system of claim 7, further comprising a collimator to direct the beam to the subject.

12. (currently amended) The X-ray tube CT system of claim 7, wherein the ~~at least two duplex bearing system assemblies~~ distributes load substantially evenly.

13. (currently amended) The X-ray tube CT system of claim 7, wherein the ~~at least two duplex bearing system assemblies~~ straddles the target.

14-18. (currently amended).

19. (currently amended) A method for CT imaging, the method comprising:
rotating a gantry about a subject ~~at greater than three rotations per second~~;
emitting X-rays from an X-ray tube mounted on the gantry, wherein the X-ray tube withstands up to 65 g of stress in operation; and
generating one or more images of the subject based upon the attenuation of the emitted X-rays by the subject.

20. (currently amended) The method of claim 19, wherein rotating the gantry comprises rotating the gantry at greater than three approximately five rotations per second.

21. (canceled)

22. (new) An X-ray tube, comprising:

an anode assembly, comprising:

a target for emitting X-rays upon irradiation with an electron beam,

a rotor shaft coupled to a motor rotor system and the target, the rotor shaft configured to rotate the target, and

a bearing system supporting the rotor shaft; and

a cathode assembly, comprising:

a cathode configured to emit the electron beam, and

an insulator isolating the cathode from ground potential;

wherein the X-ray tube provides high-voltage stability of up to 200 kV in operation.

23. (new) The X-ray tube of claim 22, wherein the insulator comprises a conical insulator.

24. (new) The X-ray tube of claim 22, wherein the insulator is offset in a radial direction to the motor rotor system.

25. (new) The X-ray tube of claim 22, wherein the bearing system distributes load substantially evenly.

26. (new) The X-ray tube of claim 1, wherein the bearing system straddles the target.